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A Review on Environmental Characteristic that Influence Children Physical Activities in Low Cost Housing

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Abstract

Children living in high-density low-cost housings are less likely to spend time outdoors. Issues regarding low physical environment quality, which are common among low-cost housings, may limit or hinder children's outdoor physical activities. The objective of this paper is to review the impact of physical environment of low-cost housing, upon children's physical activities. To address the objective, published articles related to the subject matters are reviewed. Findings revealed that four distinguished physical characteristics namely, poor safety, crowding, inadequate facilities and poor neighborhood relationship, were found to be the major contributors in less physical activities among children.

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Keywords: Physical activity; low-cost housing; neighborhood relationship; poor safety

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1. Introduction

Rapid urbanisation in the recent years has increased the demand for low-cost housing. Expensive and acute shortage of low-cost landed properties due to the urbanisation that seen as the main factors. However, low-cost housing is commonly associated with inadequate infrastructure maintenance and poor quality.

A study states that the 60% of the people living in low-cost housing are from low-income families with many children (Currie & Yelowitz, 2000). Due the high number of children living in there, proper facilities that support their growing needs should be considered. Physical activity among children contributes to physical and mental health, and that affects their overall development. Poor access to a good physical environment that is responsive to their physical activity needs is detrimental and causes many later problems. Children are our future generation. Therefore, investment in the physical environment to maximize their potential to grow properly is crucial.

1.1. Parents and technology

Technology impacts people's life in different ways. Despite the so many benefits of using technology, the negative effects of it were also reported. Technology is used to provide assistant and improve efficiency. Unfortunately, some parents misused technology on their children and that they are not aware of the negative impacts that the technology has, in their children's life. A common example is interactive video technology such as computers, mobile phones and video games. For some parents, to keep their child contented and to be at home, such gadgets provide the solution. This situation imposed many later problems on children. It reported that children who spend most of their time being sedentary at home playing video games or watching movies were prone to have several health issues such as obesity, hypertension, insulin resistance, dyslipidemia. It also causes a problem in their developmental process as they are not trained to be physically and socially active (Boldemann et al., 2011; Carver, Timperio, & Crawford, 2008; Harmon et al., 2014; van Loon, Frank, Nettlefold, & Naylor, 2014).

1.2. Living in low-cost housing

Besides the technology issue, the physical environment is also reported to have effects on children physical activities. Low physical activities among children are common in low-cost housing especially the high-density high-rise. Forcing children to stay inside the house will ensure their safety especially for those living in a low-cost public housing. With the multi-level design and high density of people living in a same building, it is hard for the parents to keep their eyes on the children activities outside the house. Thus, keeping them indoor is safer for most parents. As a result, children spend less time playing outdoors (Karsten, 2005). It shows that the physical environment in low-cost housing will restrain children's freedom to play outdoor, thus contributes to several health issues and childhood diseases amongst children (van Loon et al., 2014; Vandivere et al., 2006).

High-density low-cost housing poses a serious challenge, even in this modern age. Limited physical space is usually inadequate for a family with children to live. This paper aims to explore and highlight the aspects of the physical environment that can affect children living in high-density, low-cost high-rise areas, and how it influences their physical activities. In-depth understanding of this matter able to apprehend the issues that hinder children's physical activities. This will help the researcher to find ways that could enhance children's physical activities as it will promote more physical and social interaction that could help their development process.

2. Methodology

Literature from various disciplines be it qualitative or quantitative, were selected and reviewed. Theoretical, review and empirical article are reviewed for the purpose of gaining better understanding of low-cost public high-rise housing condition, children physical activity, children development, physiological, psychology, and the environmental characteristic that hinders the physical activity of the children. Literature was searched using databases available online (Science Direct, Scopus and Web of Knowledge). Keywords such as neighbourhoods, crowding, safety, facilities, low-cost housing and children physical activity were used to direct the search. Findings revealed that the environmental characteristics do influence children's physical activity and their overall outcome.

3. Results and discussion

3.1. Safety

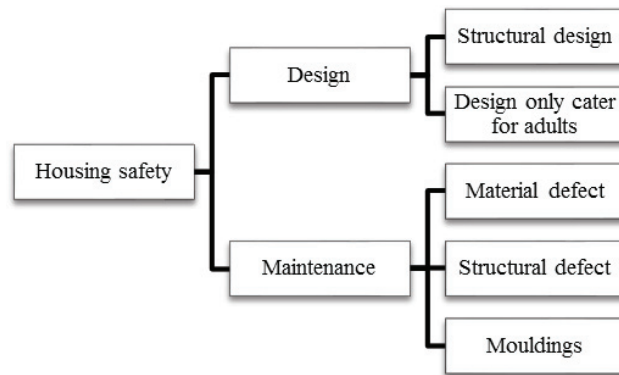


Fig. 1. Housing safety aspects that should be considered

Figure 1 shows the housing safety aspect where the design of the low-cost housing and building maintenance contributes toward the safety of the children's. Children are vulnerable and easily exposed to danger. Therefore, we need to ensure safety for both adults and children alike during the design process. Three important aspects are (Cordovil, Araújo, Pepping, & Barreiros, 2015):

- Environmental design suitable for children
- Consider children action and capability as different from adults
- The unpredictable behavior of children needs to be considered

The poor structural design can potentially harm children (Vandivere et al., 2006). Legally, most building guidelines only specify minimum and maximum requirements without stressing the importance of design purposes and effect. For example minimum, the height of safety railing is 900mm but a horizontally constructed bar that is safe for adults may cause danger to children climbing.

Low-cost housing usually lacks organized maintenance due to cost. Low quit rent taxes can only provide common area maintenance at an intermittent schedule that are sparsely apart. Unattended material and structure defects may cause harm to the children such as slippery molded surfaces, rotten timber, rusted iron and others.

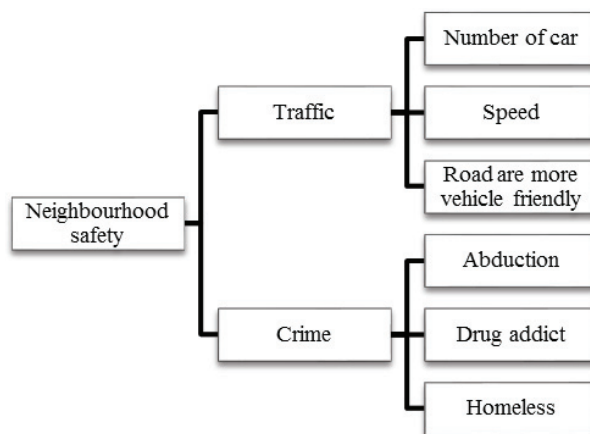


Fig. 2. Neighbourhood safety aspect that should be considered

Neighborhood safety issues have become one of the factors that limits children outdoor activity (Carver et al., 2008; Vandivere et al., 2006). Figure 2 summarised the characteristic of a neighbourhood that could cause harm to the children living in the low-cost housing area. The restrictive attitude of concerned parents limits children activities and space to play. Safety issues have become one of the reasons children are not allowed to play outside, away from their parents surveillance (Husin, Nawawi, Ismail, & Khalil, 2012; Mea, 1990; Ramli, Akasah, & Masirin, 2014; Rudner, 2012). Strangers and road safety issues are the two main threats that concern parents. It does not mean other aspects have neglected, but these two factors are the major reasons why children are not allowed to play outside. Traffic, crime (N. F. Aziz & Said, 2012; Vandivere et al., 2006; Zhang & Li, 2012), personal injury, bullying and strangers (Carver, Timperio, Hesketh, & Crawford, 2010) will limit children from going beyond the confines of their home due to parent concerns (Latfi & Karim, 2012; Tee, n.d.). As a result, they are only allowed to play near or within their home or within visual supervision (Mea, 1990; Rudner, 2012).

The increased use of cars further reduce children activity where children no longer walk as they are sent from place to place via transportation (Zhang & Li, 2012). In a sense, the road is like a river and barrier that limits children from expanding their range. Low-cost housing areas usually located in urban districts where houses surrounded with roads and heavy traffic. The environment now days are designed more towards being vehicle friendly rather than people friendly that could cause increases in road traffic accidents (Zhang & Li, 2012). As a matter of fact, accidents involving children are reported even in closed gated communities thus further limiting parents to allow children to roam freely without adults supervision.

Four out of five parents are concerned about child safety by road accidents causing injury (Mea, 1990). Surveys show that almost half of children aged 7 are allowed to cross the road by themselves and the number of children allowed to cross roads are increasing by the year (Mea, 1990). Although surveys show positive results with regards to children mobility, this does not highlight that children are allowed to roam freely without supervision.

Now day's parents are reluctant to allow their children to play outside without supervision, and their activities are usually organized and supervised by adults (Karsten, 2005; Mea, 1990; Tandy, 1999). Therefore, children living in low-cost housing are more likely to play along corridors where surveillance by adults living nearby are present. Parent restriction will reduce social and physical activity among children (N. F. Aziz & Said, 2012).

Children who readily exposed to natural outdoor environments can afford to be independently mobile. Unlike those who live surrounded by concrete blocks, natural surroundings are limited, thus reducing the chances of optimum interaction with the natural environment (A. A. Aziz & Ahmad, 2012b).

Presently, rapid development in urban areas have given a huge impact on children independence, especially when low-cost housing developments surrounded by streets that act as barriers for children to play (N. F. Aziz & Said, 2012). The awareness of stranger danger includes unwelcome approach by strangers, abduction, assault, molestation and even murder performed by adults, teenagers and even older children (Carver et al., 2008). Such crimes are often drug, poverty and gang related which closely associated with low-cost housing. Even worse, they often live in the community. As compared to closely-knitted rural communities, suspicion amongst parents within the community is lesser. Mothers in rural areas often have higher personal safety than mothers in urban areas, especially those in low-cost housing (Salmon et al., 2013). Due to safety issues, open spaces in low-cost housing are minimally used, contributing to less social interaction among children (Aziz & Ahmad, 2012).

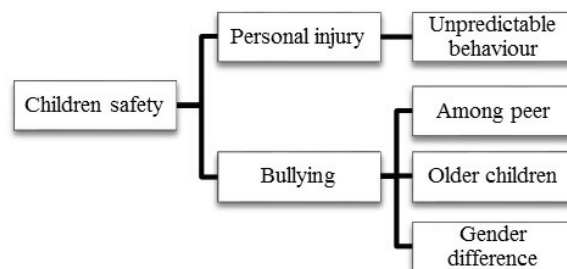


Fig. 3. Children safety aspect that should be considered

Children exposed to the danger even without influences of the surrounding aspect. Figure 3 represent the reasons of the children exposure to safety among children. Studies show that older children and male children are more independent when it comes to age, gender and ethnic factors (Rudner, 2012). It was due to the safety of vulnerable children with regards to bullying and self-inflicted injury.

Urban parents, especially those living in low-cost housing, are also being troubled by bullying among children. Bullying caused by peer group territory, age and gender differences. Older children look at younger children as weaklings and intruders that subjected to harsh means leading to bullying. They also tend to take advantage of younger children who seek favor and space.

Gender dominance issues are common – girls tend to marginalize. They are often given smaller space or be located far away from the main playgrounds or areas. For this reason, they tend to play indoors rather than outdoors.

It can conclude that bullying issues are common among residents in high-density low-cost housing where the limited allocation of space and amenities are the contributing factors, which will discuss next.

3.2. Crowding

This topic will discuss two aspects of crowding – family crowding and neighborhood crowding. Both aspects of crowding are said to have impacts on children physical activities, thus affect their mental and health development. Children who live in low-cost housing equipped with high number of households are more likely to suffer from overcrowding issues, thus affect their wellbeing (Currie & Yelowitz, 2000; Curtis, Corman, Noonan, & Reichman, 2010; Leventhal & Newman, 2010; Ormandy, 2014; Solari & Mare, 2012). Figure 4 shows the impact of crowding on children based on family and neighbourhood context.

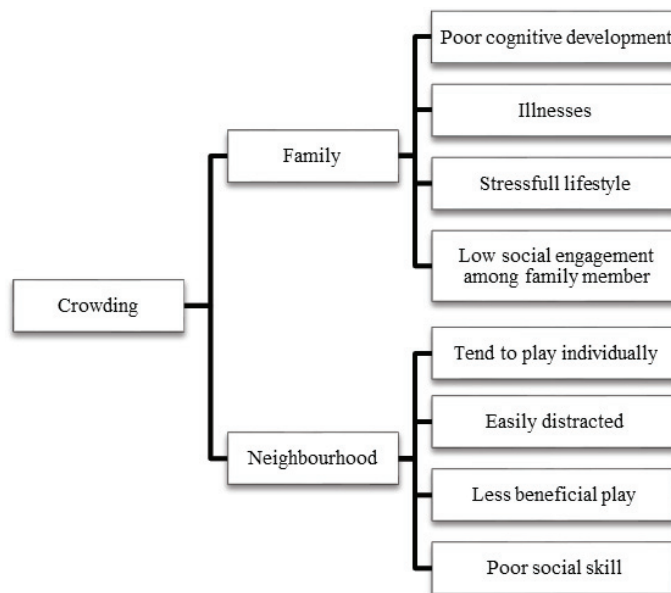


Fig. 4. Impact of crowding on children

Poor housing conditions affects a child's life in different aspects (Currie & Yelowitz, 2000; Vandivere et al., 2006). Crowding issues could contribute to several types of illness such as stomach infection and respiratory problems as well as other illnesses (Currie & Yelowitz, 2000; Vandivere et al., 2006).

The inappropriate size of space or rooms in a house could cause some stress and negative effects on its occupants or users (Solari & Mare, 2012; Vandivere et al., 2006). It believes that family members that are physically and socially close may affect one another, especially the children.

Adults may impose psychological distress on children who create tense between them (Kopko, n.d.; Vandivere et al., 2006). Parents who are being irresponsible to their child's needs may put their children in distress and damage their parent-child relationship that they have (Kopko, n.d.). These situations contribute to low social engagement among children where they find it difficult to interact with peers (Solari & Mare, 2012). Children cognitive and language development could also be affected (Kopko, n.d.). It is due to the environment – it contributes to the intergenerational spread of social inequality as children are more likely to be raised in multi-level socio-economic groups (Solari & Mare, 2012). It can relate back to physical activity, all effects due to crowding will impact children behavior. Usually, children with problems socializing tend to be inactive as they do not know how to play and interact with peers.

Overcrowding is forcing children to make full use of surrounding accessibility. These children might use outdoor neighborhood environments as a medium for social interaction, exploration and development (A. A. Aziz & Ahmad, 2012b). Every day, playing time is becoming a daunting task even before the activity begins. The overcrowded neighborhood does not accommodate growing children at all due to limited space and inconsiderable planning for children physical activity.

Children tend to be more distracted when exposed to activity areas with high density of children, resulting in less beneficial play time (Kopko, n.d.) Children could experience loss of self-efficiency and become helpless due to crowded living spaces that limit their control over action and interactions (Vandivere et al., 2006). Limited facilities will hinder them from exploring neighborhood places as they need to compete with each other's as the majority of the neighborhood is fully occupied.

3.3. Facilities

Numerous studies have been done to look for residential satisfaction on low-cost housing. Results show that most are satisfied with the public and neighborhood facilities provided for them (A. A. Aziz & Ahmad, 2012a; Husin et al., 2012; Karim, 2012; Mohit, Ibrahim, & Rashid, 2010; Salleh, 2008). Although occupant satisfaction regarding facilities is present, there are still a huge number of unsatisfied residents regarding the social environment. What they do not see is that facilities provided are interrelated with the social environment that does not favor them socially. It means that even though facilities are there, it does not contribute to social interaction amongst residents. It shows that the facilities provided are insufficient with the number of residents in low-cost housing or their access to facilities is not well coordinated or not in favor of the automobile culture.

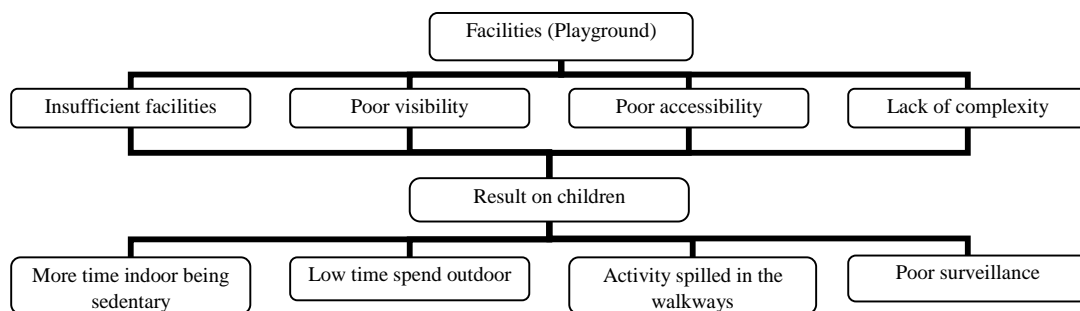


Fig. 5. Poor facilities characteristic and the result on children physical activities

Children living in low-density areas tend to have sufficient outdoor recreational activities as compared to children in high-density areas. It is due to enough facilities provided to cater their needs. The limitation of low-cost housing is space. Hence, facilities such as playgrounds are often inadequately provided by the developer (Latfi & Karim, 2012). Problems arise when there are not enough spaces for the children to play around due to the limited land area.

Research show that, even though, the provision of playgrounds ruled by authorities is only 10% of every development in Selangor, it deemed not sufficient enough for development. Especially for low-cost, high rise where the verticality is not being considered three-dimensionally (Latfi & Karim, 2012). High population density in low-cost housing and the playground provided seems to be insufficient or unplanned to them. It will lead to different times spent playing outside in the recreational area between medium and high-density residential. Children that live in low-cost housing that has a high density of people tend to spend most of their time inside the house. Even when they were allowed to play, it would be limited to the nearby areas. That's why it is often found that children used circulation space as their social and playing area (A. A. Aziz & Ahmad, 2012b). A recreational area should be conducive for children to gather and play in (Zhang & Li, 2012). It shows that the lack of complexity provided in playground areas would limit children activities and their creativity to explore (Latfi, Karim, & Zahari, 2012). Recreational areas should have an environmental attractiveness that promote more play amongst children (Zhang & Li, 2011).

Both neighborhood and public facilities should be accessible to residents. Thus, increase physical activities and social interaction not only among children but also adults in the high-density residential area. High accessibility will enable people to access facilities by foot rather than by transportation.

Facilities provided to encourage physical activities among children should be of high visibility to people (Zhang & Li, 2011). Improved surveillance will reduce the fear of a parent towards the safety of the children.

By providing enough basic and neighborhood facilities, their daily lives and quality of life will improved (Mohit et al., 2010). The spaces outside the home can encourage more physically and socially active lifestyles (Ivory et al., 2014). Built environment settings play an important role in ensuring that people are more involved with their neighbors.

3.4. Neighbourhood relationship

People living in urban areas often have a busy lifestyle and that they often have limited time to interact and build the relationship with their surrounding neighbours. Such ignorance contributes to low neighbourhood surveillance that pose their home in greater danger.

Friendly neighborhoods provide a friendly environment where all adults know each other and are not afraid to allow their children to play outside. Good neighbourhood relationship is hard to be found nowadays especially in urban areas where people are too busy with work. All adults have a 'mind your own business' mindset with one another resulting in an unfriendly neighborhood environment. It can give a negative impact on their children. When adults don't even know their neighbors, they tend to be more suspicious about their children's safety. As a result children are not allowed to play outside without supervision that will effectively limit children's independent mobility and sense of security. Without mobility, physical activities will be reduced.

Family and neighborhood environments influence the behavior of the children (Salmon et al., 2013) which can relate to physical activity and sedentary behavior among children. Good neighbourhood relationship can increase social capacity and improve children mobility (A. A. Aziz & Ahmad, 2012b). They can play around freely as they do not depend on the parent authority or even provide transportation for the children to go (Carver et al., 2008). More time with a neighbourhood area means more time for children to experience social and fewer structured activities (Carver et al., 2008). It is believed to be able to help improve their sociability as they will gather and communicate with one another (Zhang & Li, 2012).

Low-cost housing with poor neighborhood characteristic are detrimental for children (Currie & Yelowitz, 2000) as it will restrict their development (Aziz & Ahmad, 2012). It believes that the reduction of goods and services in low-cost housing areas are also not good for children (Currie & Yelowitz, 2000). What they do not foresee is that neighborhood activities can provide an inexpensive form of activity (Carver et al., 2008).

Mothers from rural areas have a more positive perception of their environment as compared to mothers from urban areas (Salmon et al., 2013). The tendency of each family to intermingle with each other creates a friendly neighbourhood. Poor neighborhood relationship relates to poor social and physical activity for children to grow.

Socialize activity harness the neighbourhood relationship thus increased security (A. A. Aziz & Ahmad, 2012a) resulting in higher chances of physical activity amongst children.

4. Conclusion

It has clearly stated that safety, crowding, facilities and neighbourhood relationship play an important role in determining the level of activities for the children. Poor safety, overcrowding, inadequate facilities and poor neighbourhood relationship will reduce children physical activities and increase the time spent being sedentary that could lead to health and social problems in the future.

The physical environment of low-cost housing affects children behavior in terms of children's biological, cognitive, social and emotional development. Physically inactive children due to their low physical activities associated with the poor quality of the physical environment. To cater for their requirements, the built infrastructure for low-cost housing should not obstruct children's physical activities.

Although the cost is an issue in low-cost housing constructions, a supportive physical environment for children's physical activities does not necessarily require fancy extras. The adoption of expensive fancy materials or finishes is not the case, but the manipulation of space design that support play is of the main concern. Space allocation for children to play, for example an outdoor playground or manipulation of corridor layouts in a low-cost public high-rise housing, will significantly enhance children's physical activities. Children are our future generation. Therefore, minimal investment towards the physical environment will maximize their potential to be physically and socially active. The designer needs to be more crucial in designing a space in the low-cost housing that promotes children's physical activities.

Despite its poor image, low-cost housing is important for large numbers of a low-income population. It accommodates places, provides protection and comfort for economically struggling people, which help those that living in urban areas where the cost of living is higher compared to the rural area. Children are vulnerable to their surrounding environment. Lack of access to a good physical environment may inhibit their learning and development processes. Every child despite their economic backgrounds not marginalized in life. All should have equal opportunities to develop properly – physically and mentally. Because children are most vulnerable, designers should not put their future in jeopardy. Low-cost housing should accommodate with an infrastructure that facilitates children growth - it must encourage physical activities. More research regarding the manipulation of the physical environment in low-cost housing as an effort to enhance physical activity among children is needed.

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